A Small Pleistocene Herpetofauna from Tamaulipas

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Records of Pleistocene amphibians and reptiles from Mexico are so few that a small late Pleistocene herpetofauna from a cave in extreme southern Tamaulipas is of considerable interest. This large cave, named Cueva de Abra, is in a limestone hill near the Pan American Highway, 10 kilometers north-northeast of the village of Antiguo Morelos, Tamaulipas, Mexico. Walter W. Dalquest collected living mammals from this cave in 1947 (Dalquest and Hall, 1947), and since then many collectors have visited the site.

In May, 1966, a party from Midwestern University consisting of Walter W. Dalquest, Edward Roth, Robert Westmoreland, and Robert Coffman explored the cave for vertebrate fossils. In the process of exploring the cave the group found the remnants of a former travertine ledge, some parts of which contained large numbers of the fossil bones of small vertebrates, mainly mammals, but with some birds, reptiles, and amphibians. Several slabs of this travertine of a total weight of about 300 pounds were brought back to Midwestern University where the slabs were treated with dilute acetic acid in order to remove the bones.

The origin of the bones is attributed to the regurgitated pellets of barn owls (*Tyto alba*) that perched above the ledge. It is thought that in times past that carbonate-laden drops of water fell from the ceiling to form a drip-stone crust that incorporated the bones.

Based on the mammalian fossils and on the stratigraphic conditions within the cave, Dalquest believes that the fossils represent a time in the very late Pleistocene. The fossil birds from Cueva de Abra are being studied by Pierce Brodkorb of the University of Florida and the mammalian remains have been detailed in an article to be submitted by Dalquest and Roth for publication. I wish to thank Dr. Dalquest for the privilege of studying and reporting on the herpetological fossils. My part of the work was supported by National Science Foundation Grant GB-5988. All measurements are in millimeters.

Amphibia

Rhinophrynus dorsalis Dumeril and Bibron

Material. One left and one right humerus; one right ilium; one left and one right tibiofibula, Midwestern University Number (MU) 8086.

Holman (1963) gives characters for the identification of the distinctive ilium of *Rhinophrynus dorsalis.* The humerus and the tibiofibulae of this species are also quite diagnostic, and they reflect the strong burrowing adaptations of this form. The fossils are identical to the living species, and the bones appear to be from a single individual. The genus *Rhinophrynus* has been reported only once previously as a fossil as the extinct species *R. canadensis* from the early Oligocene of the Cypress Hills formation of Saskatchewan, Canada (Holman, 1963). The species *R. dorsalis* occurs in southern Tamaulipas today.

Syrrhophus cf. *Syrrhophus campi* Stejnger

Material. Proximal part of a left ilium, MU 8087.

This is the first record of this species as a fossil. *Syrrhophus* cf. *S. marnocki* has been reported from the late Kansan of Knox County, Texas, by Tihen (1960), and *Syrrhophus marnocki* has been reported from the Sangamon of Foard County, Texas by Lynch (1964). This species probably occurs in the area today (Smith and Taylor, 1948).

Leptodactylus cf. *Leptodactylus labialis* (Cope)

Material. Posterior part of pelvic girdle including posterior parts of both ilia; one left and two right ilia, MU 8088.

The only other fossil record of this genus is for the extinct species *L. abavus* from the early Miocene of Gilchrist County, Florida (Holman, 1965). Due to the lack of comparative material, I am unable to assign these elements to species with complete certainty.

Rana pipiens Schreber

Material. Two left and two right ilia; two tibiofibulae; two radioulnae, MU 8089.

This species is a common Pleistocene fossil in the United States, but this is the first report of it as a fossil from Mexico. The ilia of *Rana pipiens* may easily be separated from that of *R. catesbeiana* on the basis that the posterior portion of the dorsal crest slopes much less precipitously into the dorsal acetabular expansion in *R. pipiens* than in *R. catesbeiana*. *Rana pipiens* occurs in the area today.

Reptilia

Sceloporus cf. *Sceloporus variabilis* (Wiegmann)

Material. Three right dentaries, MU 8090.

The fossils are similar to recent S. *variabilis*. But the teeth of the fossils are a little more robust, and those in about the posterior two-thirds of the dentary are not as distinctly tricuspid as they are in skeletons of S. *variabilis*. The two larger fossils represent animals of about the same size as a recent S. *v. variabilis* from Mandinga, Veracruz, with a snout-vent length of about 50.0. The tooth count of two of the fossils is 23-24 (23.5); and the length of the dentary from the most posterior alveolus through the ramus in two of the fossils is 7.0-7.9 (7.45). The only other fossil record of the species is from the late Pleistocene of a cave in Kendall County, Texas (Holman, 1968). In the 20 fossil S. *variabilis* from the Texas site the tooth count was 23-29 (25.6); and the length of the dentary from the last alveolus through the ramus was 6.2-8.8 (7.63).

Sceloporus sp. indet.

Material. Four right and one left dentaries; five maxillary fragments; one scapulocoracoid, MU 8091.

This material represents one or more larger species of *Sceloporus*, but on the basis of available comparative material I am unable to arrive at a specific identification. The tooth count of two of the fossils is 25-29 (27.0); and the length of the dentary from the most posterior alveolus through the ramus in three of the fossils is 11.5-11.8 (11.63).

Lepidophyma sp. indet.

Material. Four left and six right splenio-dentaries; two left and four right dentary fragments; one right posterior mandible; eight maxillary fragments, MU 8092.

The dentaries are assigned to the family Xantusiidae on the basis of the following combination of strong characters pointed out by Hecht (1956): tooth replacement of the non-anguimorph pattern; postcoronoid process present; dentary and splenial fused to form a single element, the splenio-dentary; lingual shelf present; coronoid process strong; Meckelian groove absent; and low number of teeth present.

The fossil splenio-dentaries are similar to *Lepidophyma* and differ from the recent xantusiid genera *Cricosauria* of Cuba and *Xantusia* and *Klauberina* of southwestern United States on the basis of the much larger size of *Lepidophyma.* The fossils may be further separated from most *Xantusia* and *Klauberina* on the basis of having more teeth: fossils 16-17 (16.34); *Xantusia vigilis* 12-14 (12.6); *X. henshawi* 13-16 (14.8); *X. arizonae* 12-14 (13.1); *Klauberina riversiana* 13-14 (13.3). The tooth counts for the recent forms are from Hecht (1956).

There are only two fossil xantusiids known and both of these are extinct forms. The Mexican fossils from Cueva de Abra may be separated from the fossil *Palaeoxantusia* Hecht from the middle Eocene of Wyoming in having more teeth (*Palaeoxantusia* has 13) and in being larger; and they may be separated from *Impensodens* Langebartel, an extinct subrecent form from a cave in Yucatan, on the basis of having more teeth. *Impensodens* is said to have 11 or 12 teeth (Langebartel, 1953), but Hecht (1956) thinks that there may be 13 or 14 teeth in this form.

Langebartel has provided measurements of the three recent species of *Lepidophyma,* and he explains his measurements in this way "In the case of *L. s. smithi, L. flavimaculata,* and *G. gaigeae,* the largest specimen among large series was selected for tooth and jaw measurements." He further states that the measurement of the jaw depth behind the last tooth gives a rough index of the size of the animal. This measurement in the Cueva de Abra fossils and in the recent forms is as follows: eight fossils 1.9-3.0 (2.29); *L. s. smithi* 2.2; *L. flavimaculata* 3.0; and *L.* (Gaigeae) *gaigeae* 1.4 Therefore, as the measurements of the recent species are all based on the largest specimen of a large series, it is apparent that the fossils are most similar in size to recent *L. flavimaculata.* The fossil and recent *Lepidophyma* species all have very similar tooth counts.

Today, *L. smithi* presumably ranges from northern Veracruz to

southern Tamaulipas on the Atlantic slopes of Mexico, and it is known from Oaxaca and Chiapas on the Pacific slopes (Smith and Taylor, 1950). But *L. flavimaculata* is known only from the Atlantic slopes, occurring from southern Veracruz to British Honduras, excluding the Yucatan Peninsula. It is interesting to note that the fossils most closely resemble in size a species that occurs far to the south of the fossil locality today.

Cnemidophorus gularis Baird and Girard

Material. Five left and two right dentaries; one partial maxilla, MU 8093.

The jaws are quite similar in size and in other characteristics to recent *C. gularis.* Based on three specimens at hand, *C. gularis* is much smaller than *C. guttatus* and has a higher tooth count, 19-20 (19.3) than in *C. deppei* (18 in two specimens). The single complete fossil dentary has a tooth count of 21 and a length of the dentary as measured from the last alveolus through the ramus of the mandible of 8.8. This species is found in the area of the cave today.

Colubrinae sp. indet.

Material. Twenty-eight precaudal vertebrae; one partial left mandible, MU 8094.

These vertebrae represent a small colubrinid snake, but there is not enough comparative material on hand to be able to determine the genus or the species of the snake.

Comments

None of the Cueva de Abra amphibians and reptiles definitely represent extinct species, or forms that would not be expected to occur in the area today, unless the species of *Lepidophyma* is actually *L. flavimaculata,* a species that reaches the northern limits of its distribution in southern Veracruz. It is hoped that more fossil material will eventually be collected from this cave, and that additional comparative material will become available, so that new identifications can be made and tentative identifications can be confirmed.

In the light of the presumed derivation of the fossils from the pellets regurgitated by barn owls, it is interesting to note that the

most abundant amphibian or reptile (at least 10 individuals present) is the lizard *Lepidophyma*. *Lepidophyma* is a nocturnal animal (Alvarez del Toro, 1960) whose period of activity would presumably coincide with the feeding period of the barn owls.

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